

## TECHNOLOGY NEEDS/OPPORTUNITIES STATEMENT

### TREATMENT OF RH TRU SLUDGES SUCH AS WASTE COMING OUT OF K BASINS STORAGE POOLS

**Identification No.:** RL-MW036

**Date:** October 2001

**Program:** Waste Management

**OPS Office/Site:** Richland Operations Office/Hanford Site

**PBS No.:** RL-CP02

**Waste Stream:** 1566 – RH TRU Stored/New

**TSD Title:** 206 – M-91 Facility

**Operable Unit (if applicable):** N/A

**Waste Management Unit (if applicable):** N/A

**Facility:** Future M-91 Facility

#### **Priority Rating:**

This entry addresses the “Accelerated Cleanup: Paths to Closure (ACPC)” Priority:

- ☒ 1. Critical to the success of the ACPC
- ☐ 2. Provides substantial benefit to ACPC projects (e.g., moderate to high lifecycle cost savings or risk reduction, increased likelihood of compliance, increased assurance to avoid schedule delays)
- ☐ 3. Provides opportunities for significant, but lower cost savings or risk reduction, and may reduce uncertainty in ACPC project success.

**Need Title:** Treatment of RH TRU Sludges such as Waste Coming out of K Basins Storage Pools.

**Need/Opportunity Category:** *Technology Need* --There is no existing or currently identified technology capable of solving the site’s problem (i.e., technology gap exists, no baseline approach has been identified).

**Need Description:** M-91 facilities will need to have the capability to treat RH-TRU waste in sludge form that may be contaminated with PCBs. K Basins sludge will be stored in T Plant starting Jan 2003 and is being designed with a maximum 30-year storage life. Another waste that may use this technology is sludge in T Plant canyon tanks. Current estimates are that 2,250 cubic meters of RH-TRU waste will need to be treated by the year 2040, with most prior to 2020. T Plant is considered the main candidate for processing this waste.

#### **Schedule Requirements:**

Earliest Date Required: 2007

Latest Date Required: 2013

Technology needs to be established between end of FY 2007 (conceptual design start) and 2013 (start of operations), to support the M-91 facility baseline.

**Problem Description:** With large-scale quantities of RH-TRU waste, there is no current method of treatment, and treatment is required.

**Potential Life-Cycle Cost Savings of Need (in \$000s) and Cost Savings Explanation:**

No alternative to treatment is available, so cost savings are N/A.

**Benefit to the Project Baseline of Filling Need:** Allows fulfillment of legal obligation to treat waste.

**Relevant PBS Milestone:** A2G-08-109 M-91-15 Complete Acquisition of Facilities and Initiate Treatment of RH and Large Container (CH) LLMW

**Functional Performance Requirements:**

<b>Work Breakdown Structure (WBS) No.:</b>	<b>TIP No.:</b>
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1.2.2	Candidate
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**Justification For Need:**

**Technical:** No current method of treating large quantities of this waste is available.

**Regulatory:** Tri-Party Agreement milestone M-91-15 requires treatment (see above). State regulations require LDR treatment of waste.

**Environmental Safety & Health:** Reduces environmental hazards associated with long-term storage of this waste.

**Cultural/Stakeholder Concerns:** Helps eliminate concerns that Hanford Site waste is being left onsite untreated.

**Other:** None identified.

**Current Baseline Technology:** N/A

**End-User:** Waste Management.

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Waste volume, m <sup>3</sup>	Current: 0 m <sup>3</sup> ; Forecasted (5 yrs): 46 m <sup>3</sup>
Waste form	RH-TRU sludge
Waste stream I.D.	1566
Contaminants and co-contaminants	References: SNF-7767, "Supporting Basis for Spent Nuclear Fuel Project Sludge Technical Databook", Aug. 2001; HNF-SD-SNF-TI-009, "105K Basin Material Design Basis Feed Description for SNF Project Facilities, Vol. 2, Sludge", April 2001; HNF-SD-SNF-TI-015, "Spent Nuclear Fuel Project Technical Databook", Volumes 1 and 2, September 2001.
Function of technology	Capability for treatment of RH-TRU sludges
Source category	Various Hanford Site programs